a color imaging device including

a plurality of photo detectors arranged on the imaging surface, each of the photo detectors forming a pixel, and

a plurality of sets of four filters for three colors, two filters of the four filters being for a selected color of the three colors, the filters being arranged at positions respectively corresponding to the photo detectors,

the image of the object being formed on the photo detectors through the filters by the imaging optical system;

shift drive means for shifting the imaging optical system and the photo detectors relative to each other by a distance corresponding to a predetermined number of pixels on the imaging surface; and

an image processing unit for generating an image using a plurality of image data picked up before and after the shifting;

wherein the image processing unit generates and outputs a single monochromatic image using only pixel data detected by photo detectors corresponding to the two filters for the selected color of the three colors.

2. (Amended) An image processing apparatus according to claim 1, wherein the color filters are arranged according to a Bayer scheme.

3. (Amended) An image processing apparatus according to claim 1, wherein the shift drive means shifts the imaging optical system and the photo detectors

relative to each other by a distance corresponding to 1/n (n is an integer) of a pixel on the imaging surface.

4. (Amended) An image processing apparatus according to claim 1, wherein the selected color of the three colors is green.

5. (Amended) An image processing apparatus according to claim 1, wherein the image processing unit interpolates pixels lacking pixel data of the selected color of the three colors in one of the plurality of image data with pixel data in another one of the plurality of image data.

6. (Amended) An image processing method comprising the steps of:

picking up, with a color imaging device, an image of an object formed on an imaging surface by an imaging optical system, the color imaging device including

a plurality of photo detectors arranged on the imaging surface, each of the photo detectors forming a pixel, and

a plurality of sets of four filters for three colors, two filters of the four filters being for a selected color of the three colors, the filters being arranged at positions respectively corresponding to the photo detectors,

the image of the object being formed on the photo detectors through the filters by the imaging optical system;

extracting pixel data of pixels corresponding to the two filters for the selected color of the three colors from image data of the image picked up;

shifting the imaging optical system and the color imaging device relative to each other by a distance corresponding to 1/n (n is an integer) of a pixel on the imaging surface;

a1 cont'd

picking up, with the color imaging device, the image of the object formed on the imaging surface after the shifting step;

extracting pixel data of the pixels corresponding to the two filters for the selected color of the three colors from image data of the image picked up after the shifting step; and

c1

generating a monochromatic image by synthesizing a plurality of pixel data extracted before and after the shifting step.

7. (Amended) An image processing method according to claim 6, wherein the shifting step, the picking-up step after the shifting step, and the extracting step after the shifting step are repeated a plurality of times for a plurality of different shift positions.--

Add new claims 8-14 as follows:

a2 cont'd c1

--8. (New) An image processing apparatus according to claim 1, wherein the image processing unit also generates a color image using a plurality of image data picked up before and after the shifting; and

wherein the image processing apparatus further comprises an output unit for selectively outputting one of the single monochromatic image and the color image.

9. (New) An image processing method according to claim 6, wherein the filters are arranged according to a Bayer scheme.

A3 Cont'd

10. (New) An image processing method according to claim 6, wherein the selected color of the three colors is green.

C1

11. (New) An image processing method according to claim 6, further comprising the step of interpolating pixels lacking pixel data of the selected color of the three colors in one of the plurality of image data with pixel data in another one of the plurality of image data.

12. (New) An image processing method comprising the steps of:

picking up, with a color imaging device, an image of an object formed on an imaging surface by an imaging optical system;

extracting pixel data of pixels corresponding to a single color from image data of the image picked up;

shifting the imaging optical system and the color imaging device relative to each other;

picking up, with the color imaging device, the image of the object formed on the imaging surface after the shifting step;

extracting pixel data of the pixels corresponding to the single color from image data of the image picked up after the shifting step; and

generating a monochromatic image by synthesizing the pixel data extracted before and after the shifting step.

13. (New) An image processing method according to claim 12, wherein the color imaging device includes a plurality of sets of four filters for three colors including the single color; and

wherein two filters of the four filters are for the single color.

14. (New) An image processing method according to claim 12, wherein the color imaging device includes

a plurality of photo detectors arranged on the imaging surface, each of the photo detectors forming a pixel, and

a plurality of sets of four filters for three colors including the single color, two filters of the four filters being for the single color, the filters being arranged at positions respectively corresponding to the photo detectors,

the image of the object being formed on the photo detectors through the filters by the imaging optical system;

wherein in the shifting step, the imaging optical system and the color imaging device are shifted relative to each other by a distance corresponding to a predetermined number of pixels on the imaging surface; and

wherein the generating step generates a single monochromatic image using only pixel data detected by photo detectors corresponding to the two filters for the single color.--